Claim(s)

What is claimed is:

1. A transmission line providing a signal path for conveying a signal between two points with an adjustable signal path delay, the transmission line comprising:

a signal conductor for conveying the signal between the two points;

first means having first variable capacitance that is a function of a magnitude of a first control voltage supplied as input thereto; and

first coupling means for providing a sufficient amount of first coupling capacitance between the first variable capacitance and the signal conductor such that the first variable capacitance substantially influences a rate at which the signal conductor conveys the signal between the two points.

2. The transmission line in accordance with claim 1 wherein the first means comprises a first varactor diode.

3. The transmission line in accordance with claim 2 wherein the first coupling means comprises a first coupling conductor in electrical contact with the first varactor diode and positioned near the signal conductor such that the first coupling capacitance is provided between the first coupling conductor and the signal conductor.

4. The transmission line in accordance with claim 3 wherein the first varactor diode links the first coupling conductor to a ground potential.

5. The transmission line in accordance with claim 3 further comprising means for generating the first control voltage on the first coupling conductor so that the first control voltage appears across the first varactor diode.

6. The transmission line in accordance with claim 5 wherein the means for generating the first control voltage

comprises a first digital-to-analog converter (DAC) connected to the first coupling conductor, wherein the first DAC generates the first control voltage of magnitude controlled by data applied as input to the first DAC.

7. The transmission line in accordance with claim 3 further comprising an insulating substrate residing between the first coupling conductor and the signal conductor.

8. The transmission line in accordance with claim 1 wherein the signal conductor is embedded in an insulating substrate.

9. The transmission line in accordance with claim 1 further comprising:

second means having second variable capacitance that is a function of a magnitude of a second control voltage supplied as input thereto; and

second coupling means for providing a sufficient amount of second coupling capacitance between the second variable capacitance and the signal conductor such that the second capacitance substantially influences a rate at which the signal conductor conveys the signal between the two points.

10. The transmission line in accordance with claim 9

wherein the first means comprises a first varactor diode and

wherein the second means comprises a second varactor diode.

11. The transmission line in accordance with claim 10

wherein the first coupling means comprises a first coupling conductor in electrical contact with the first varactor diode and positioned near the signal conductor such that the first coupling capacitance is provided between the first coupling conductor and the signal conductor,

wherein the second coupling means comprises a second coupling conductor in electrical contact with the second

varactor diode and positioned near the signal conductor such that the second coupling capacitance is provided between the second coupling conductor and the signal conductor,

12. The transmission line in accordance with claim 11 further comprising control means for generating the first control voltage on the first coupling conductor so that the first control voltage appears across the first varactor diode and for generating the second control voltage on the second coupling conductor so that the second control voltage appears across the second varactor diode.

13. The transmission line in accordance with claim 12 wherein the first and second control voltages are of opposite polarity.

14. The transmission line in accordance with claim 13 wherein the control means comprises a first digital-to-analog converter (DAC) connected to the first coupling conductor, wherein the first DAC generates the first control voltage of magnitude controlled by first data applied as input to the first DAC;

wherein the control means further comprises a second (DAC) connected to the second coupling conductor, wherein the second DAC generates the second control voltage of magnitude controlled by second data applied as input to the second DAC, and

means for applying the first data as input to the first DAC and the second data as input to the second DAC.

15. The transmission line in accordance with claim 9 further comprising an insulating substrate linking the first coupling conductor to the signal conductor and linking the second coupling conductor to the signal conductor.

16. The transmission line in accordance with claim 9 wherein the signal conductor is embedded in an insulating substrate.

17. The transmission line in accordance with claim 1 wherein the first means comprises a first thin film varactor diode.

18. The transmission line in accordance with claim 9 wherein the first means comprises a thin film varactor diode, and

where the second means comprises a second thin film varactor diode.

19. The transmission line in accordance with claim 3 wherein the first coupling conductor comprises:

a plurality of conductive fingers, each being positioned near the signal conductor and spaced apart from one another such that each conductive finger provides a portion of the first coupling capacitance along a separate portion of the signal conductor, and

means for conductively linking the conductive fingers to the first varactor diode.

20. The transmission line in accordance with claim 11 wherein the first coupling conductor comprises:

a plurality of first conductive fingers, each being positioned near the signal conductor and spaced apart from one another such that each conductive finger provides a portion of the first coupling capacitance along a separate portion of the signal conductor;

means for conductively linking the conductive fingers to the first varactor diode, and

wherein the second coupling conductor comprises:

a plurality of second conductive fingers, each being positioned near the signal conductor and spaced apart from one another such that each conductive finger provides a portion of the second coupling capacitance along a separate portion of the signal conductor; and

means for conductively linking the second conductive fingers to the second varactor diode.

21. The transmission line in accordance with claim 1 wherein the signal conductor has an elongate first planar surface extending in a first direction;

wherein the first coupling means comprises a conductive second planar surface parallel and proximate to a first area of the first planar surface; and

wherein the transmission line further comprises an insulating substrate interconnecting the first area of the first planar surface to second planar surface.

22. The transmission lie in accordance with claim 21 wherein the first planar surface is of substantially uniform first width in a second direction perpendicular to the first direction in said first area and is of a substantially uniform second width in the second direction other than in the first area, wherein said first and second widths are substantially dissimilar.

23. The transmission line in accordance with claim 22 wherein the conductive second planar surface comprises:

a plurality of conductive fingers, each being positioned near the first area of the first planar surface and spaced apart from one another such that each conductive finger provides a portion of the first coupling capacitance along a separate portion of the first area of the first planar surface, and

means for conductively linking the conductive fingers to the first variable capacitance.

24. The transmission line in accordance with claim 23 wherein the first means comprises a first varactor diode.

25. The transmission line in accordance with claim 1 wherein the signal conductor has a substantially circular cross-section perpendicular to a direction in which it conveys the signal.

26. The transmission line in accordance with claim 25 wherein the signal conductor has a first outer surface, and

wherein the transmission line further comprises first insulating material formed around the first outer surface of the signal conductor such that the first insulating material has a substantially circular cross-section perpendicular to the direction in which the signal conductor conveys the signal.

27. The transmission line in accordance with claim 26 wherein the first insulating material has a second outer surface and wherein the first coupling means comprises:

a first conductive layer formed on the second outer surface, and

means for conductively linking the first variable capacitance to the first conductive layer.

28. The transmission line in accordance with claim 27 wherein the first means comprises a first varactor diode.

29. The transmission line in accordance with claim 26 wherein the first insulating material has a second outer surface,

wherein the first coupling means comprises a first conductive layer formed on the second outer surface, and

wherein the first means comprises a first thin film varactor diode formed on the second outer surface of the first conductive layer.

30. The transmission line in accordance with claim 29 further comprising:

a second conductive layer covering the thin film varactor diode such that the thin film varactor diode resides between the first and second conductive layers; and

means for coupling the second conductive layer to ground potential.

31. The transmission line in accordance with claim 9 wherein the signal conductor has a substantially circular cross-section perpendicular to a direction in which it conveys the signal.

32. The transmission line in accordance with claim 31

wherein the signal conductor has a first outer surface, and

wherein the transmission line further comprises first insulating material formed around the first outer surface of the signal conductor such that the first insulating material has a substantially circular cross-section perpendicular to the direction in which the signal conductor conveys the signal.

33. The transmission line in accordance with claim 32

wherein the first insulating material has a second outer surface,

wherein the first coupling means comprises:

a first conductive layer formed on the second outer surface, and

means for conductively linking the first variable capacitance to the conductive layer, and

wherein the second coupling means comprises:

a second conductive layer formed on the second outer surface, and

means for conductively linking the second variable capacitance to the conductive layer.

34. The transmission line in accordance with claim 33

wherein the first means comprises a first varactor diode, and

wherein the second means comprise a second varactor diode.

35. The transmission line in accordance with claim 32

wherein the first insulating material has a second outer surface,

wherein the first coupling means comprises a first conductive layer formed on the second outer surface,

wherein the second coupling means comprises a second conductive layer formed on the second outer surface,

wherein the first means comprises a first thin film varactor diode formed on the second outer surface of the first conductive layer, and

wherein the second means comprises a second thin film varactor diode formed on the second outer surface of the second conductive layer.

36. The transmission line in accordance with claim 35 further comprising:

a third conductive layer covering the first and second thin film varactor diodes such that the first thin film varactor diode links the first and third conductive layers and such that the second thin film varactor diode links the second and third conductive layers, and

means for coupling the third conductive layer to ground potential.

37. The transmission line in accordance with claim 36 further comprising:

control means for generating the first control voltage on the first conductive layer so that the first control voltage appears across the first thin film varactor diode and for generating the second control voltage on the second conducive layer so that the second control voltage appears across the second varactor diode.